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ABSTRACT

The study attempted to evaluate the perceived utility of college majors, the academic major and career congruency, a general assessment about the quality of the educational preparation, and the effects of gender upon the outcome measures for 53,372 college alumni. The American College Testing (ACT) Alumni Survey was used to collect data between January 1980, and May 1988, at 172 colleges and universities in 42 states, involving 16 major area categories. Analysis indicated that the major field of study had a clear impact on the perceived utility of the major, the congruency or "job fit," and the overall assessment of academic career preparation. Females generally reported a stronger relationship between their careers and academic majors, which held across a diverse number of academic major fields. Fine Arts majors reported a high degree of perceived utility for their field, as opposed to alumni majoring in home economics and community service, who rated their field's utility as low. Alumni in social science majors reported low ratings in all three categories, whereas majors in professional areas (computer science, engineering, business, education) had consistently high ratings in all categories. Implications for curriculum development and schools are discussed. Contains 32 references. (GLR)

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AN ASSESSMENT OF THE PERCEIVED UTILITY OF VARIOUS COLLEGE MAJORS

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ASSOCIATION FOR THE STUDY OF HIGHER EDUCATION

This paper was presented at the annual meeting of the Association for the Study of Higher Education held at the Red Lion-Jantzen Beach in Portland, Oregon, November 1-4, 1990. This paper was reviewed by ASHE and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC collection of ASHE conference papers.

ABSTRACT

The ACT Alumni Survey was used to evaluate the perceived utility of majors, the academic major and career congruency, a general assessment about the quality of the educational preparation, and the effects of gender upon the outcome measures for 55,000 college alumni.

Statistical variations among college majors and between genders were observed. In particular, certain majors received high marks on several measures, e.g. computer science and health related careers, whereas others received uniformly poor ratings, e.g. social sciences, biology, general studies. Women reported a higher degree of college major and career consistency than did men.

For the past 50 years researchers have been concerned with the outcomes of a college education (Pace, 1984). In fact, in the last decade a number of studies have been done demonstrating the range of attributes associated with college attendance (Pace, 1979; Astin, 1977; Bowen, 1977; Feldman & Newcombe, 1969; Graham & Cockriel, in press; Kuh, 1981; Trent & Medsker, 1968; Valiga, 1982). In the past few years, however, college officials have become very sensitive about their accountability for the progress made by their students. This change has largely been due to the national associations and policy making organizations that have focused attention on the issue (Jacobi, Astin, & Ayala, 1987). In a recent article, Bok (1986) acknowledged the increased concern about college outcomes observed among public officials and argued that faculty and college administrations should become actively involved in assessing the results.

Another issue that has been debated recently has been one of which college majors best prepare students for later careers (Richards, 1984; Phelan & Phelan, 1983; Astin & Kent, 1983, Daymont & Andrisani, 1984; Marion & Cheek, 1985; Howard, 1986; Clement, 1987). While many studies have focused on issues such as employability or income potential, few studies have examined the actual feelings and attitudes of college alumni about the selection of a major and its perceived utility after graduation. In fact, reviews of recent research conducted on vocational and career development by Borgen, Layton, Veenhuizen, and Johnson (1985) and by Phillips, Cairo, Blustein, and Myers (1988) show very few articles focusing on academic preparation and its perceived utility. Additional research is needed which will assess the perceptions of college graduates about their previous academic preparation and provide suggestions for academic advising or curricular change.

This study was undertaken to specifically assess: how well college prepared students for later occupations, how alumni felt about the selection of their academic majors after gaining some work experience, and how closely alumni felt their occupations were

related to their academic preparation in college. This study attempted to evaluate the effects of college size, college type, and gender upon these attitudes, issues that have not been assessed in a comprehensive fashion. It also drew subjects from a national sample of colleges and universities to provide findings that could be generalized to a number of institutions. This information would allow academic and career advisors to better advise students about their career and academic goals.

RELATED LITERATURE

Many of research studies have been conducted to examine the effects of a college education. The findings essentially suggest that college graduates have improved written and verbal communication skills, have more liberal social and political views, have better developed critical thinking and analysis skills, obtain better and higher paying jobs, are more appreciative of other cultures and philosophies, and have more positive self esteem than those who do not attend college (Astin, 1977; Bowen, 1977; Feldman & Necomb, 1969; Kuh, 1985; Kuh & Wallman, 1986; Pace, 1979; Trent & Medsker, 1968). Kuh (1985) has noted that four general categories have been identified by the National Center for Higher Education Management Systems to assist in understanding college outcomes. These include 1) knowledge and intellectual development, 2) social development, 3) personal development, 4) career and vocational development. It is the latter category that will be the focus of this research.

Several articles have discussed the characteristics most desired by employers and the need for technical as well as transferable skills (Grandillo & Cripps, 1988; Murphy & Jenks, 1983; Weaver & Haviland, 1980). In an extensive longitudinal study examining AT&T managers, Howard (1986) assessed several attributes such as decision-making, creativity in solving business problems, communication skills, and intellectual ability. She found that

managers with humanities and social science backgrounds performed better than all others on six of eight performance factors and on all measures of overall performance. While she acknowledges the importance of the individuals' background characteristics, she cites the significance of college major in predicting success on the various performance measures (pp. 539-542).

Richards (1984) conducted an extensive study of several hundred college graduates from the University of Massachusetts. She developed a "Job Fit Index" which assessed occupational status, the degree requirements for a job, and the relationship between a job and one's previous field of study. Her findings indicated a significant association between college major and subsequent job fit. For example, science majors reported the highest degree of occupational fit whereas humanities majors reported the lowest amount of occupational fit. Academic major was also related to continued schooling with most individuals seeking additional degrees in professional fields. However, job stability and employment status were not related to the major field of study. Furthermore, three years after graduation, no association was observed between college major and income.

Marion and Cheek (1985) examined the outcomes of college and their relationships to student characteristics and found several variations according to the students' perceptions about their major areas of study. They examined satisfaction with previous majors, job and academic major fit, propensity for advanced study, satisfaction with the quality of education received, and a host of other college outcome variables.

Their findings indicated that those who were satisfied with the quality of their education reported enhanced reasoning skills, abilities to make logical inferences, and communication and people skills. Individuals who would select the same majors again felt more prepared for graduate or professional study and had developed important employment skills. Graduates who considered their jobs to be directly related to their previous academic majors felt college

had helped them with employment skills. Those whose jobs were unrelated to their college majors reported strengths in communicating effectively and in the appreciation of art, music, and literature.

Lewis and Nelson (1983) conducted a study of 3,000 graduates of a mid-western state university. Dividing the respondents into five academic areas (i.e. nursing, business, education, liberal arts, and science), they found significant variations according to income, political activity, community involvement, cultural activities, and the proportion of graduates who had received advanced degrees.

One study conducted by Phelan and Phelan (1983) examined the effects of college major, gender, and institutional type upon early life outcomes. Common to earlier findings, they reported variations in income by academic major as well as differences in both life and job satisfaction. Interestingly, social science majors reported above-average responses on both life and job satisfaction whereas engineering, business, and humanities majors indicated mixed responses. These authors cite the importance of previous background and the major field of study in predicting early life outcomes.

In conducting research on the adequacy of career preparation and the usefulness of the college experience for later life, other institutional variables and student characteristics must also be considered. Several researchers have pointed out variations among students and institutions and the effects they have on outcome measures. Astin (1977) studied the effects of college size, age, college type (i.e., private or public), and the student/faculty interaction. Kuh (1981) cites differences between private and public college students. Pace (1979) reported on several studies where institutional type, institutional size, and status variables were used. In fact, it is quite common to include institutional size, institutional type, and gender as variables in the analysis of college outcomes (Kuh, 1985; Pascarella, Smart, Ethington, & Nettles, 1987; Phelan & Phelan, 1983).

A considerable amount of research has been conducted to assess the differences observed in college outcomes and employment based on gender (Astin & Kent, 1983; Phelan & Phelan, 1983; Richards, 1984), on the gender preferences and earnings in occupational roles (Daymont & Andrisani, 1984; Sundal-Hansen, 1984), on gender variations in job satisfaction (Dawis, 1984), on self-efficacy and gender effects (Clement, 1987), and on self-concept, gender, and college outcomes (Pascarella, Smart, Ethington, & Nettles, 1987).

Several studies have indicated gender differences in occupational choices and even in income but there is some confusion as to whether it is due to gender discrimination or to the selection of careers and past professional experiences (Sundal-Hansen, 1984; Daymont & Andrisani, 1984). Astin and Kent (1983) report that the field of study was associated with self-esteem among women, as was attendance at women's colleges. However, generally males and females have not reported wide variations in the level of job satisfaction or life satisfaction. The findings by Richards (1984) probably typify the findings of most researchers:

> Sex showed relatively little obvious relationship to employment outcome among employed respondents. Job fit was the same for both sexes, a finding which agrees with previous evidence. Income was not significantly higher for men, although the direction of the relationship was in favor of male graduates (p. 293).

A number of researchers such as Pace (1979), Kuh (1981), and Bowen (1977), have recommended the use of data from college alumni as a way of determining any lasting effects and in evaluating the impact of college after students have gained life and work experiences. The merit of this approach is that alumni can provide some valuable insights, especially since they have the benefit of hindsight and can evaluate their college and work experiences and the relative importance. Furthermore, they can report the actual

significance of such aspects as college major and academic preparation in contrast to speculating about their value as students.

METHODOLOGY

The American College Testing (ACT) Alumni Survey is an instrument developed specifically to assess college alumni and the outcomes of the college experience. The ACT Alumni Survey, a four-page questionnaire, was designed to help colleges and universities assess their recent graduates and to assist institutions in their planning activities. The ACT Evaluation/Survey Services, of which this is a major instrument, is generally recognized as an excellent example of the non-admission testing services available to colleges and universities (Buros Institute of Mental Measurements, 1985).The Alumni Survey was used to collect data between January 1, 1980 and May, 1988 at 172 colleges and universities throughout 42 states. The institutions involved in this study were those that had utilized the ACT research services during the six-year period and were not randomly selected. However, according to ACT officials, these institutions could be considered representative of those who utilize the ACT research services (Valiga, personal communication, June 24, 1987). The 172 institutions involved represented both public and private institutions of various types from across the country. These institutions most typified small liberal arts colleges, regional state universities, and regionally-based campuses of large university systems.

These institutions mailed the survey to a sample of their recent graduates and the completed forms were returned to ACT for scoring and evaluation. During this time 77,361 surveys were completed and comprised the original sample for this study. The subjects selected for this study were those respondents who indicated that their highest degree was a bachelor's. This eliminated all respondents reporting graduate degrees or associate degrees. These restrictions reduced the total subjects for this analysis to 53,372.

In regard to the demographic characteristics of the sample, approximately 90% of the respondents were between the ages of 21-39 with the largest group (57%) falling between 23-29. About two-thirds had graduated within the four years prior to completion of the survey. The subjects represented a variety of academic major areas with the greatest numbers having completed majors in business (19.4%), education (19.4%), health professions (12.1%), social sciences (12.5%), and communications related areas (9.0%). The rest represented areas such as physical and biological sciences, engineering and computer science, fine arts, and community services. Approximately 90% of the respondents had been enrolled full-time in college, 60% were female, and 82% had been residents of the states in which their colleges were located. Given these characteristics the sample was considered representative of students enrolled in small liberal arts colleges, regional state universities, and regionally-based campuses of large university systems.

The ACT Alumni Survey allows for some 200 specific majors to be identified and lists these under the following broad categories: agriculture, architecture, biological sciences, business and commerce, communications, computer and information sciences, education, engineering, fine and applied arts, foreign languages, health professions, home economics, letters, mathematics, physical sciences, community service, social sciences, trade, industrial and technical, and general studies (the complete list of majors is available from the authors). Due to a smaller number of respondents reporting majors in "letters" and "language", these individuals were grouped with communications majors. Architecture majors were included with the engineering majors for a similar reason. All respondents not reporting a major or reporting their major as "undecided" were dropped from this analysis. This left a total of 16 major area categories.

The respondents were examined to determine if differences were present among the various academic areas now that the alumni had gained life and work experiences. An "elaboration analysis"

(Nie, Hull, and Jenkins, 1975) was conducted using gender, type of institution, and size of institution to identify other potentially intervening variables. This procedure basically consisted of examining the primary relationships by entering the third level potentially intervening variables to determine if the nature and trends of the primary relationships changed. For example, did gender have any bearing on how respondents from different academic areas felt about their career preparation. In this fashion potential intervening variables could either be identified or eliminated. As a result of this analysis, gender was the only variable identified as one which might have a significant interactive affect upon the analysis of the academic major areas. Consequently, a two-way analysis of variance (ANOVA) technique was utilized to examine the effects of the major areas and gender upon the dependent variables in question. The alpha value was set at .05 to determine any statistical relationship between academic major and the three variables measuring 1) utility of college major, 2) preparation for present occupation, and 3) similarity between academic preparation and current occupation.

RESULTS

In regard to the first question measuring the ultimate perceived utility of various college majors, the analysis focused on the question "If you could start college over, would you choose to graduate with the same major?" The subjects responded to a five point scale ranging from "definitely yes" to "definitely no". This was a particularly important broad measure of satisfaction with one's choice of a college major and a representation of how the individual felt about the academic major as a means of career preparation.

INSERT TABLE 1 ABOUT HERE

Statistical differences were observed among majors, between

sexes, and even as an interaction between sex and major area (See Table 1). Those who majored in computer science indicated the greatest degree of satisfaction with their major responding "definitely yes" 59.4% of the time followed by those in engineering (40.9%), fine arts (40%), and health related professions (37.4%). As might be expected, the respondents in these major areas were also most likely to report fewer numbers who answered "probably no" or "definitely no" to the question of selecting the same major again. In contrast, respondents majoring in home economics, community services, social sciences, and general studies were less likely to indicate they would select the same majors again. In each case only 15-20% of these groups indicated they would "definitely" select these areas of study again. This evidence was further substantiated by the sizeable portion of these individuals who reported they would "probably" not or "definitely" not select these majors again (i.e., 40-50%). The specific responses are reported by major category in Table 2.

INSERT TABLE 2 ABOUT HERE

Even when examining the effects of gender, most of these same basic trends persisted. Most of the significant variations were present in just a few major area categories. For example, females having majored in engineering reported a lower degree of satisfaction with their major than did males, responding somewhat similar to the total group (i.e., 31% reporting "definitely yes"). In contrast, males majoring in health related professions seemed to indicate less satisfaction than their female counterparts (24.7% vs 38.7% reporting "definitely yes"). Females were much more likely to report that they would "definitely" select a major in education again than were the males (i.e., 34.9% vs 24.1%). By and large, however, the variations were to the greatest extent due to the major categorizations.

In examining the second issue, that of job fit, or how closely one's

current occupation related to one's major in college, some interesting results emerged. On this item alumni responded to the question "How closely related is your current occupation to your major at this college?". Statistical differences were once again present among majors, between sexes, and in the interaction of sex and major (see Table 1). In general, respondents seemed to indicate that their current work was related to their academic preparation. Overall, some 49% indicated that the two were "highly related" and another 20% indicated that they were moderately related. However, another 20% indicated their academic preparation was "not at all" related to their careers.

Those major areas where respondents reported the highest levels of congruency or that the occupation and college major were "highly related" included: health related professions (84%); computer science (73.1%); and education (62.4%). Those who reported lower rates of high congruency had majored in physical sciences (38.6%); fine arts (34.5%); communications (33.4%); biological sciences (27.4%); general studies (24.5%); and social science (18.6%).

In contrast, in several major areas respondents indicated that their academic preparation was "not related" to their current occupations. These included social science (38.1%); fine arts (33.5%); biological science (29.7%); communications (29.5%); and general studies (26.8%). The specific responses are outlined in Table 3.

INSERT TABLE 3 ABOUT HERE

In examining the effect of gender, it appeared that gender had a rather significant influence upon the respondents' perceived major and career consistency. Though gender did not often significantly alter the general tendencies observed among the academic major areas, wide variations were present between the sexes within the various occupational categories. In general, women seemed to perceive that their academic preparation and current occupation were more consistent than did men. The following list most

succinctly illustrates some of the variations present among those who felt their academic preparation and current occupation were "highly related": biological science (males 22.6% vs females 32.4%); education (males 48.2% vs females 66.3%); mathematics (males 31.7% vs females 55.9%); social sciences (males 14.6% vs females 22.0%); trade and industry (males 38.9% vs females 62.1%); and general studies (males 20.0% vs females 31.3%). This interaction was

significant as can be seen in Table 1.

The final issue addressed in this research related to the overall assessment of academic career preparation, or how well the college experience prepared alumni for their present occupations. Here alumni responded to the question "How well did this college prepare you for your present occupation?". Once again statistically significant differences were obtained among the responses by the different major categories, according to gender, and in the interaction of the two variables (see Table 1).

The primary variations were more limited on this measure and were observed mainly among six major areas. Essentially health-related professions and computer science majors were more likely to respond that their college prepared them "very well" for their present occupations (48.8% and 39.7%, respectively). On the otherhand, biological science, fine arts, and social science majors were less apt to feel that their colleges prepared them "very well" for their ultimate careers (i.e., 21%; 20.8% and 18%, respectively). These figures can be contrasted to a general overall response of about 31% of all majors who responded that their college prepared them "very well". In a similar manner, engineering majors were less inclined to report that their college did "not at all" prepare them for later occupations (5.8% vs 13.3% overall). The figures in Table 4 best summarize these findings.

INSERT TABLE 4 ABOUT HERE

Even though a statistical difference was present when assessing the effects of gender, few if any specific trends emerged. Females were moderately more inclined to feel they had been prepared "very well" but the variations were mainly limited to the academic areas of education, engineering, health related professions, and general studies.

DISCUSSION

As can be seen from the above findings, clearly the major field of study had an impact on the perceived utility of the major, the congruency or "job fit," and the overall assessment of academic career preparation.

In examining the three major questions addressed in this research, certain noteworthy trends emerged. In several instances there was considerable consistency observed among certain fields of study. For example, alumni having completed majors in computer science and health-related professions tended to rate the utility of their academic areas high as well as the job fit and the overall assessment of the career preparation they received. One might cite the focus on professional preparation in these areas as the reason for this finding. However, other professional areas such as engineering, business, or education did not show such consistently high ratings. In fact, despite the traditional career focus of the business administration curriculum, these alumni reported average rankings on all three of the measures researched in this study.

In contrast to those majors receiving high marks on job fit, perceived utility, and academic career preparation, several areas received fairly consistent low ratings. Alumni having completed social science majors reported low ratings on all three categories. General studies degree recipients reported low ratings on both job fit and perceived utility and biology majors reported low ratings on both job fit and overall academic career preparation. While there are any number of explanations for these findings, one of the most

obvious would be the difficulty these individuals may have had in obtaining career related professional positions.

Quite interestingly, those majoring in the fine arts areas reported a high degree of perceived utility for their field of study indicating they were more likely than average to choose that major if they started college again. This was true even though they viewed their academic preparation as less related to their careers and were less likely to feel it prepared them for their careers than did the average alumni. Perhaps this speaks very highly for the general background or skills provided by the fine arts majors.

Somewhat disturbing was the finding that alumni majoring in home economics and community service areas rated the utility of their majors low even though they reported average job fit and academic career preparation ratings. This finding may suggest that after one has gained some work and life experiences, there is something intrinsic about the work that is less appealing or satisfying than was originally expected.

By examining gender as an independent variable the study was able to pinpoint some variations not previously observed in earlier research (Richards, 1984). While statistical differences were present in all three of the issues examined, they were most pronounced in assessing job fit. Not only were females generally more likely to report a stronger relationship between their careers and academic majors, this relationship held across a diverse number of academic major fields. There was also a significant variation in ranking overall academic career preparation, though it was more confined to just a few fields of study.

These findings provide some argument against the stereotypical notions that women often work in jobs unrelated to their previous education or that college may not prepare them for future careers. Quite interestingly, women appear as willing as men to select their same major fields of study again. Given the frequent discussion about limited access to nontraditional careers and the desire to enter new fields (Sundal-Hansen, 1984), these findings were somewhat

surprising. One explanation may be that men have more opportunities to switch fields or to move in to management positions where their formal training has less specific application. This notion seems plausible since it is also consistent with the finding that women were more likely to report that college prepared them well for their present occupations. Perhaps women are more likely to seek positions directly related to their professional preparation.

Beyond having implications for several specific college major areas, this research has implications for the college curriculum in general. Clearly, any number of general conceptual skills are useful in a variety of careers that are not receiving enough emphasis in all major areas. A number of studies have identified several important conceptual and analytical skills that can be integrated into the curriculum for most major areas (Astin, 1977; Kuh, 1985; Pace, 1979). For example, Graham and Cockriel (in press) have empirically identified six general college outcome factors that were reported by college alumni. These include: planning and organizational skills, analytical thinking skills, self directed learning skills, humanistic or artistic skills, communication skills, and consumer awareness skills. These are also consistent with several traits identified by employers as valuable attributes for employment (Grandillo & Cripps, 1988). Clearly, these skills can be integrated into the students' coursework in any number of ways to provide skills that will be useful as both the environment and the nature of the positions changes. Support for this perspective was also provided by the fact that on the average less than one-third of the alumni reported that their college work prepared them "very well" for their present occupations. The college curriculum needs to be integrated to capitalize on the opportunities available to develop critical thinking skills within a variety of disciplines.

Disappointing was the finding that those majoring in the social sciences or community service rated their preparation low on all three measures. Research by Howard (1986) has shown the high degree of success obtained by managers with backgrounds in the

social sciences and humanities. Perhaps this inconsistency was due to Howard's focus on actual performance, whereas the current research addressed individuals' perceptions. Furthermore, educational institutions probably have not assisted students in understanding how their problem solving, critical thinking, or communication skills are applicable to many different careers, regardless of one's major. Given her findings and the knowledge that employers are often looking for those who have abilities in working with people (Grandillo & Cripps, 1988; Murphy & Jenks, 1983; Weaver & Haveland, 1980), it is unfortunate that more integration does not take place. Too often college faculty stress concepts that are beneficial only to those intending to do graduate coursework in that discipline. More attempts should be made to identify and develop concepts that have real world applications.

One concept useful in explaining the variations found among the various majors is the construct of "equity theory". Most often related to discussions of job satisfaction and pay equity, it refers to the feelings of fairness or justice in comparing one's situation to others (Dawis, 1984). This same notion might be helpful in understanding the variation present in the responses of the alumni. Perhaps they assessed the utility of their college preparation in relation to those around them that have been prepared in other fields. Individuals in less focused or technical careers may have felt their academic preparation was less useful and not have recognized the value of the broad problem-solving and critical thinking skills they had developed.

A number of studies have reported on the effect of sex-role stereotyping in career development and in the selection of careers (Dawis, 1984; Sundal-Hansen, 1984; Daymont & Andrisani, 1984). This research did not indicate any negative effects for females and in fact, women seemed to fare better than men in assessing the perceived utility of their fields of study and in the general assessment of their academic preparation. This is a somewhat surprising finding and points out a need for additional study. This

will be an important area to trace as more women enter nontraditional occupational areas.

Lastly, more work needs to be done to define the impact of various majors and the ways which the knowledge can be made useful and applicable outside the academic setting. Studies need to be done to examine the variations observed among alumni from different fields of study and to identify specific strengths and weaknesses. Changes can be made to develop curriculum goals, measure learning outcomes, and provide real-world skills for those enrolled in college. With the public focus on measuring outcomes and the economic impact of an educated public, the opportunities are indeed great.

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TABLE 1
Results of Comparisons Assessing College Major Utility, Job Fit, and Overall Academic Career Preparation

Variable 1.) If you could start college over, would you choose to graduate with the same major?

Major area	DF=16	SS=4318.30	MS=269.89	F=155.51*
Gender	DF= 1	SS= 114.21	MS=114.21	F= 65.81*
Major and sex	DF=16	SS= 524.81	MS= 32.80	F= 18.90*

Variable 2.) How closely related is your current occupation to your major at this college?

Major area	DF=16	SS=8742.06	MS=546.38	F=483.95*
Gender	DF= 1	SS= 283.00	MS=283.00	F=250.67*
Major & gender interaction	DF=16	SS= 279.20	MS= 17.45	F= 15.46*

Variable 3.) How well did this college prepare you for your present occupation?

Major area	DF=16	SS=2233.44	MS=139.59	F=164.78*
Gender	DF= 1	SS= 34.65	MS= 34.65	F= 40.91*
Major & gender	DF=16	SS= 78.98	MS= 4.94	F= 5.83*

* $p < .05$

TABLE 2
Perceived Utility of Major

If you could start college over, would you choose to graduate with the same major?

CATEGORY	Definitely Yes	Probably Yes	Uncertain	Probably No	Definitely No
Total	31.10	27.86	12.10	18.80	10.14
Male	30.08	28.99	11.47	19.20	10.27
Female	31.84	27.12	12.54	18.51	9.99
Agriculture	33.24	34.21	11.21	15.30	6.14
Biological Science	27.46	27.16	11.38	22.39	11.61
Business	34.69	33.94	10.49	15.54	5.34
Communications	29.98	23.65	12.82	21.82	11.68
Computer science	59.43	25.80	5.51	6.50	2.76
Education	31.60	26.02	12.72	18.63	11.03
Engineering	40.93	31.47	9.72	12.16	5.72
Fine Arts	39.85	23.74	11.41	15.83	9.17
Health	37.41	28.40	12.93	14.45	6.81
Home Economics	21.41	23.22	12.94	26.26	16.18
Mathematics	28.81	13.54	13.25	19.28	7.12
Physical Science	31.80	30.24	12.32	17.81	7.84
Community Service	22.45	26.86	13.86	22.22	14.62
Social Science	18.24	24.22	13.44	26.06	18.05
Trade & Industry	28.31	30.51	11.03	20.96	9.19
General Studies	15.60	21.37	14.96	28.42	19.66

TABLE 3
Academic Major and Career Consistency

How closely related is your current occupation to your major at this college?

Category	Highly Related	Moderately Related	Slightly Related	Not Related
Total	49.00	20.12	12.91	17.97
Male	41.01	23.34	15.02	20.64
Female	54.71	17.84	11.40	16.05
Agriculture	49.90	26.10	10.70	13.30
Biological Science	27.38	26.95	15.97	29.70
Business	44.92	30.85	15.08	9.15
Communications	33.44	19.57	17.55	29.45
Computer Science	73.14	15.51	5.59	5.76
Education	62.37	11.60	7.97	18.05
Engineering	47.98	29.97	12.53	9.51
Fine Arts	34.47	18.38	13.66	33.50
Health	83.98	8.84	4.04	3.13
Home Economics	44.53	19.28	13.54	22.64
Mathematics	46.84	27.16	16.80	9.21
Physical Science	38.62	20.38	18.24	22.77
Community Service	47.32	18.06	12.98	21.64
Social Science	18.61	21.50	21.77	38.12
Trade & Industry	42.96	28.15	16.48	12.41
General Studies	24.48	28.44	20.28	26.81

TABLE 4

Perceived Career Preparation

How well did this college prepare you for your present occupation?

Category	Very Well	Adequately	Poorly	Not at All
Total	30.70	49.72	6.32	13.25
Male	26.68	52.60	7.01	13.71
Female	33.59	47.68	5.82	12.91
Agriculture	25.45	60.56	5.63	8.35
Biological Science	20.98	48.91	10.20	19.90
Business	27.20	58.60	5.31	8.89
Communications	26.91	45.72	7.60	19.78
Computer Science	39.72	50.44	5.41	4.43
Education	35.81	45.46	5.75	12.99
Engineering	35.72	52.63	5.89	5.76
Fine Arts	20.75	42.07	11.04	26.14
Health	48.82	42.74	3.43	5.00
Home Economics	26.96	48.04	9.46	15.54
Mathematics	27.05	56.65	7.86	8.44
Physical Science	26.95	49.50	8.44	15.11
Community Service	27.56	51.63	5.62	15.19
Social Science	18.04	48.97	8.33	24.66
Trade & Industry	23.42	57.25	9.29	10.04
General Studies	31.13	45.28	5.90	17.69